

# Ultra High Power Single Mode Laser

(1060nm, CW Up to 2kW, Turn-Key)



The UHSL series is a high-power, near single-mode fiber laser delivering continuous output up to 2 kW. It has a collimator option with an integrated protection isolator and a red aiming laser beam. Adjusting the beam size makes the UHSL suitable for both heating applications and high-precision tasks such as industrial cutting and welding. The output can be modulated up to 20 kHz. With high electrical-to-optical conversion efficiency, low energy consumption, flexible fiber delivery, and a maintenance-free design, the UHSL laser is engineered for reliability and ease of use in demanding industrial environments. The system is water-cooled and features an intuitive GUI accessible via RS-232 for setting parameters, starting the laser, monitoring performance, issuing real-time alarms, and recording operational data.

## Features

- Low Cost
- High Reliability
- High Power
- Single Mode
- Turn-Key Benchtop

## Specifications

Parameters		Min	Typical	Max	Unit
The Central Wavelength		1070	1080	1090	nm
Running Mode		Continuous / modulation			
Polarization		Stochastic			
Output Rating		510, 1020, 1530, 2050			W
Spectral Width			4	6	nm
Power Stability			± 1	± 2	%
Power Linearity				± 3	%
Switch on the Light Time				20	µs
Modulating			5	20	kHz
Red Light Power		0.2			mW
Output the Optical Fiber Terminal		QBH (50/400)			
BPP Factor (86%) (> 200W output power)		≤ 2			
Armor Cable Length		15			m
Bending Radius of the Armored Cable		200			mm
Armor Cable Outer Diameter		9.5			mm
Operating Voltage, Three-Phase Four-Wire System		220			VAC
Maximum power consumption	500W model			1.5	kW
	1000W model			3	
	1500W model			4.5	
	2000W model			6	
Control Method		External control / network port			
Operating Temperature		10		40	°C
Storage Temperature		-20		50	°C
Humidity		10		90	%
Weight	500W model		23		kg
	1000W model		25		
	1500W model		27		
	2000W model		31		

## Applications

- Remote Heating
- Soldering
- Welding
- Cutting

Rev 05/01/25



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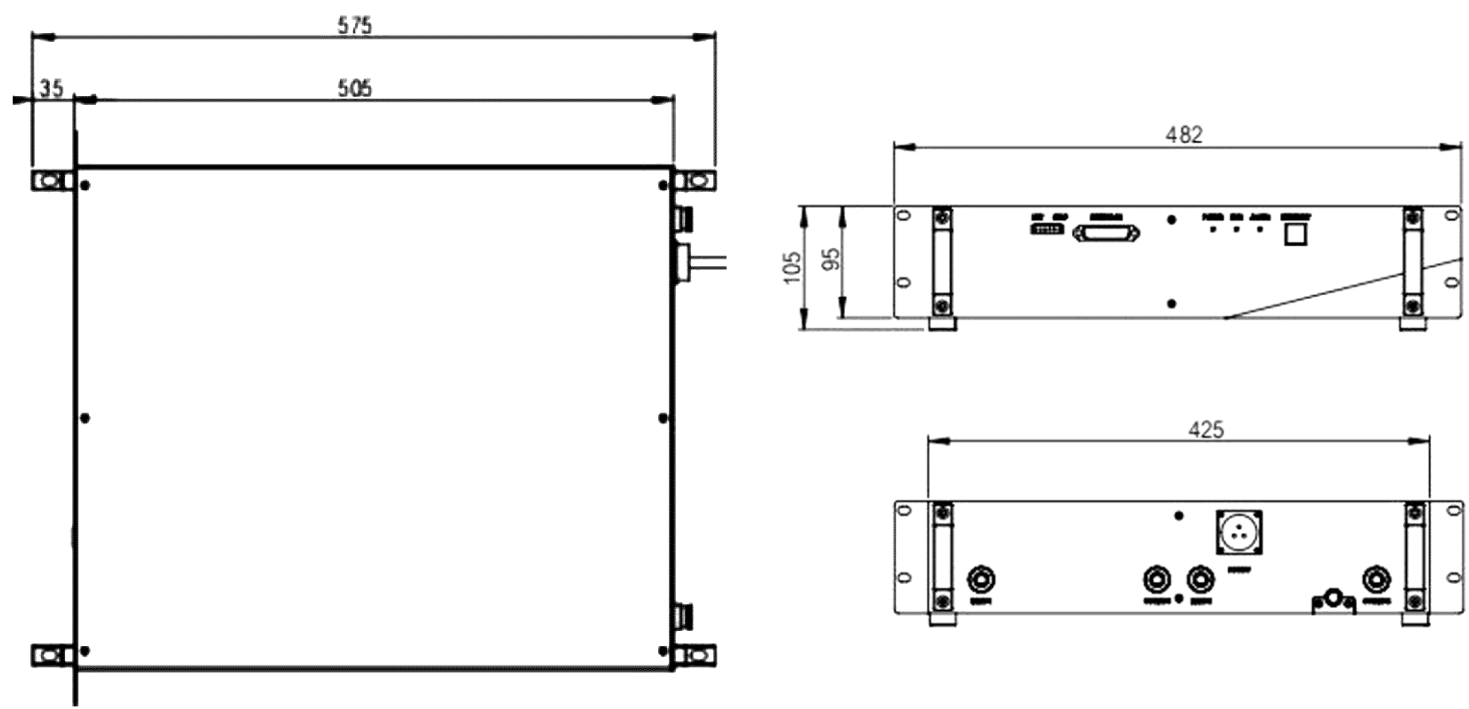
## Cooling requirements

Parameters		Min	Typical	Max	Unit
Cooling-Down Method		Water cooling (pure water)			
Water Temperature Setting		24	25	26	°C
Water pressure				7	bar
Flow After Laser	500W model	10			L/min
	1000W model	10			
	1500W model	12			
	2000W model	15			
Chiller, Cooling Capacity for	500W model	1.5			kW
	1000W model	3			
	1500W model	4.5			
	2000W model	6			
Type and Size of Water Pipe			12		mm
QBH Water Flow		1	1.5	3	L/min
QBH Water Pressure				4.5	bar

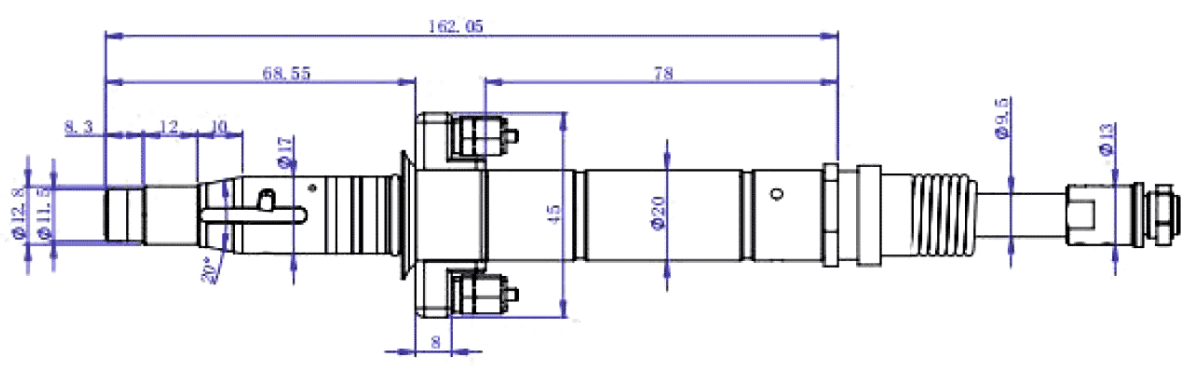
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## Mechanical Dimension



- *Laser output head*



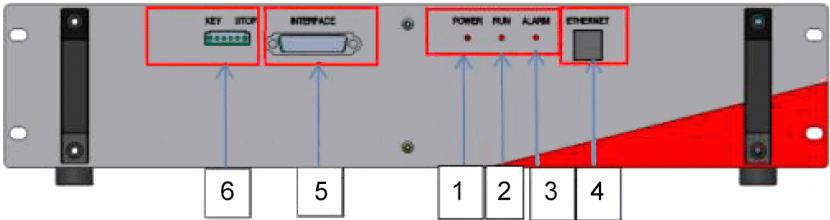
\*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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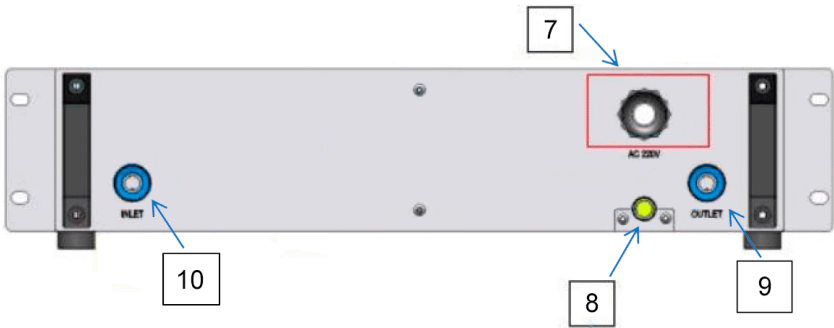
## Description of the Front Panel of the Laser

- Front panel



Item number	Indicated name	Specific explanation
1	POWER pilot light	A. Power indicator light, power start complete (including short front panel "KEY" 2 pins) wait for 10s to turn green (slowly flashing, visible to the naked eye); B. After the remote start light preparation, the green light flashes quickly (invisible to the naked eye, close to constant light); C. After power failure, wait for 10s green light to go off.
2	RUN pilot light	Run the indicator light, not on, the light changes green
3	ALARM pilot light	A. Alarm indicator light, laser standby or normal light is not bright; B. The indicator light turns red is the laser alarm
4	ETHERNET Interface	Laser Intranet control standard network cable interface.
5	RS232 INTERFACE / DB25	DB25 interface input
6	KEY / STOP interface	Key switch and emergency stop interface

- Rear panel

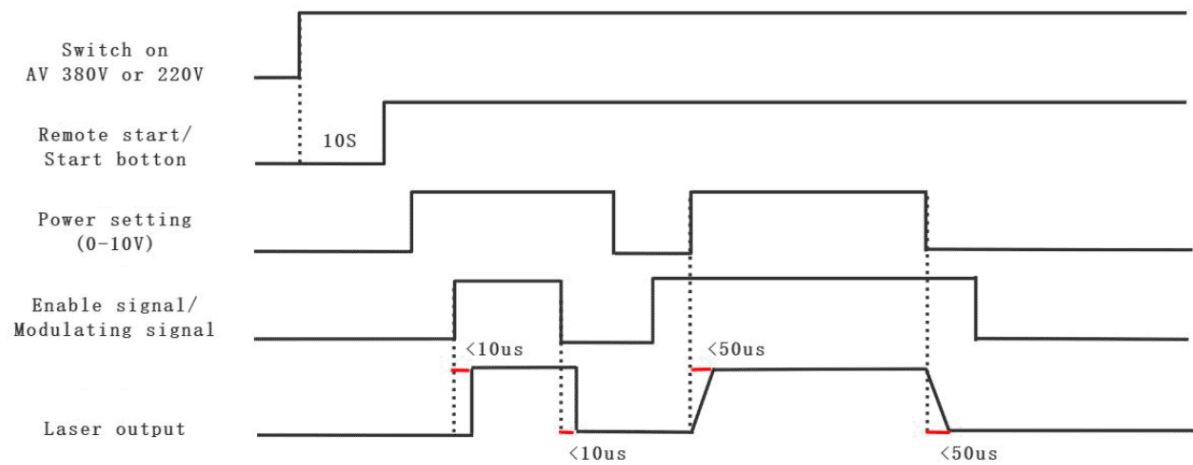


Item number	Indicated name	Specific explanation
7	AC 220V Interface	The laser uses 220V input
8	Laser output	Laser output from the yellow cable
9	INLET	Outer diameter of optical cold water inlet 12mm pipe diameter
10	OUTLET	Outer diameter of laser cold water outlet 12mm.

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## Laser Time Sequence Diagram



## Ordering Information

	1	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
Prefix	Wavelength	Output Power	Mode <sup>[1]</sup>	Collimator Beam Size	Working Distance	Isolator
UHSL-	1060nm = 1	500W = 05 1000W = 10 1.5KW = 15 2KW = 20	Random = 1	Collimator 20-25mm =20 Special = 00	0.2m = 02 0.5m =05 1.0m =10	None = 1 Yes = 2

**Warning:** The laser is vulnerable to damage from strong back reflection. Therefore, the one-year warranty applies only if the isolator is included.

[1]. PMER- Polarization Maintaining Extinction Ratio

Red is Special Order

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## Command List

## Laser Safety

A 20W 1060nm laser is a high-power infrared laser capable of causing serious injury or damage if not handled properly. This wavelength is invisible to the human eye, making it particularly hazardous as users may not realize they are being exposed. Direct exposure to the laser beam can result in severe burns or permanent eye damage, including blindness. Reflected beams can also pose significant risks. It's essential to use appropriate protective eyewear rated for 1060nm, implement proper beam enclosures, and follow all safety protocols to minimize the risk of accidental exposure. Additionally, ensure that the laser is operated by trained personnel familiar with its specific hazards.



\*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

\*IEC is a registered trademark of the International Electrotechnical Commission.



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## Questions and Answers

**Q:**